REMARKS

I. Status of the Application

In the Office Action dated September 12, 2007, the Examiner rejected claims 1-16 under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious under U.S. Patent No. 5,576,356 to Leir et al. ("Leir"). Claim 4 is canceled. Therefore, claims 1-3 and 5-16 remain at issue.

Initially, claims 1-11 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point our and distinctly claim the subject matter which applicant regards as the invention. The claims have been amended to accurately reflect the coating is treated with heat and, optionally, high velocity air prior to curing with radiation. Applicants submit no new matter is being submitted with these amendments, and the amendments are fully supported by the specification (see, for example page. 3 second paragraph of specification).

II. Rejection In View of Leir Under 35 U.S.C. §102(b) or in the Alternative, Under 35 U.S.C. §103(a)

Claims 1-16 stand rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious in view of Leir. Claim 4 is canceled. In order for a reference to act as a §102 bar to patentability, the reference must teach each and every element of the claimed invention. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771 (Fed. Cir. 1983). Without the required teaching of "each and every element" as set forth in the claims, it is improper to maintain such rejections under §102(b). Leir does not teach each and every element of the claimed invention, and thus fails as an anticipatory reference. Similarly, Applicants' invention is also not obvious in view of Leir.

Leir et al. describes a radiation cured silicone release coating from solutions of relatively low levels of a polyorganosiloxane substituted with small amounts of reactive functional groups dissolved in a co-reactive monomer or mixture of monomers and containing a photoactive catalyst (col. 4, lines 25-29). The reactive diluents used in Leir have sufficiently high boiling points above about 100°C and preferably above about 150°C so as not to evaporate from the substrate before curing (col. 7, lines 12-18). Leir discusses the preparation of "solventless" epoxysilicone containing compositions to make the release silicone coatings (Examples 33 and

34); however, these preparations are not the same as the present invention in which an organic solvent is used.

The present invention is directed to release liners. In the invention, a radiation curable silicone release agent is dispersed or dissolved in an organic solvent capable of evaporation and then applied onto the surface of a substrate. The claims have been amended to reflect that the silicone release coating is **dissolved** in the organic solvent. This amendment is supported by the specification. The coated substrate is exposed to active conditions sufficient to evaporate the solvent. In particular, the coated substrate is heated, optionally, in the presence of high velocity air, which causes the solvent to evaporate prior to curing. The substrate is then exposed to radiation to cure the silicone release coating. The result is a release liner having significantly reduced amounts of undesirable components, such as reduced total silicone extractables (measured as micrograms/square cm) and/or volatile silicone compounds (measured in ppm). Preferably, the release liners of the invention have no more than about 10 parts per million and more preferably less than about 2.0 ppm of volatile silicone compounds in the cured product (see specification at p. 2). This release liner, having the specified properties of reduced total extractables and/or volatile organic compounds, is not taught or suggested by Leir et al.

In the Office Action, it is stated that Examples 33 and 34, although specifically stated as "solventless," use a reactive diluent, which is deemed by the Examiner to be an organic solvent. Applicants maintain this comparison is incorrect. The reactive diluent is described as "having a sufficiently high boiling point above 100° C, preferably above about 150° C., so as **not to evaporate** from the substrate before curing." (emphasis added) (Leir, col. 7, lines 13-18). Applicants submit that, contrary to the statement in the Office Action, a "reactive diluent" is not the same as an "organic solvent," and that it is advantageous to have an organic solvent that readily evaporates, as set forth in the present invention and amended claim 1. Leir does not treat them as one in the same. The assumption that the "reactive diluent" specifically used in the "solventless" examples of Leir, and relied upon in the Office Action, is the same as the organic solvent in the present invention, is incorrect. Thus, given the differences in the preparation of the coating in Leir, using a reactive diluent, which does not evaporate prior to curing, and the present invention, which uses an organic solvent that is **evaporated** prior to curing, what inevitably results is a different product. As Applicants have maintained, it is the evaporation of the solvent which drives off the volatile silicone compounds resulting in the significantly

reduced total amounts of extractables in the present invention. The resulting product in Leir is a substrate, a reactive diluent and silicone, whereas the resulting product in the present application is a substrate and silicone – no solvent.

The organic solvent of Applicants' invention is desired because after application of the silicone coating to the substrate, the organic solvent evaporates through the application of heat, and optionally high velocity air, and then the coating is cured with radiation. The present claims have been amended to reflect the fact that the solvent **evaporates**. Thus, not only is the solvent driven off as planned, but also the undesirable low molecular weight silicone cyclics. The driving off of the low molecular weight silicone cyclics at this temperature is demonstrated through the results presented in Example 6 of the present application. The heating step in the present invention results in the final product having the low levels of undesirable extractables and outgassing silicone compounds in the present invention, because the act of evaporating the solvent also drives off the low molecular weight silicone cyclics in the present application.

On the other hand, the admitted higher boiling point of the reactive diluents (above 150°C or 368°F) relied upon in the "solventless" examples of Leir **does not evaporate from the substrate before curing**. This is contrary to the teaching of the present invention, wherein *the solvent is evaporated* prior to curing, taking with it the undesirable extractables and outgassing silicone compounds. Applicants further note that the web exiting the tunnel in Leir is approximately 50°C (col. 16, lines 13-16), which is lower than Applicants' web temperature of about 80°C. Again, it is the temperature evaporating the solvent of Applicants' invention that results in a product having a lower level of undesirable extractables. Therefore, Applicants submit that the "organic solvent" in their invention is not the same as a "reactive diluent" in the "solventless" systems of Leir, and the resulting products are likewise not obvious or inherently the same.

Applicants respectfully submit that their claims are not anticipated by or obvious in view of the Leir reference, and further the level of low molecular weight silicone impurities claimed and discussed in their resulting product, are not inherent in the Leir product. As discussed above, there are significant differences between the Applicants' process and that of Leir et al., which results in the coating of the present invention comprising no more than about 1.5 micrograms per square centimeter total silicone extractables and no more that approximately 10 ppm volatile silicone compounds. The fact that Applicants apply the silicone release coating in

an organic solvent, which is different than a reactive diluent, and then evaporate the solvent using heat, and optionally high velocity air, is what Applicants believe results in a product having low levels of extractables. The missing elements of extremely low levels of extractables is not inherently present in Leir, because there is no teaching or suggestion of this kind in Leir, in combination with the differences between the reactive diluent of Leir and the organic solvent in the present application. Therefore, Applicants' claimed features of its release liner are not inherent from the teaching of Leir.

To emphasize these points, Applicants include a declaration from one of the inventors, Dan Thompson. In his declaration, comparative examples were run between the Leir examples (and those of the Eckberg patents discussed below) and that of the present invention. It is clear from the results of the tests that the Leir products have significantly higher levels of outgassing volatiles and extractables than that of the present invention. The resulting low levels of extractables (no more than about 1.5 micrograms per square centimeter) and volatile silicone compounds (no more than 10 ppm) claimed in the present application and supported by the declaration are not present, claimed or described in Leir. Applicants respectfully submit that the data in the declaration clearly supports the assertion that Leir does not inherently disclose the same product as the present invention.

In view of the foregoing, Applicants have demonstrated that its process, and thus the resulting composition of the present invention, are different from that of Leir. Thus, Applicants respectfully request that the rejection under §102(b) or alternatively, under §103(a) be withdrawn with respect to Claims 1-3 and 5-16.

III. Rejection In View of Eckberg '480 and '430 Under 35 U.S.C. §102(b) or in the Alternative, Under 35 U.S.C. §103(a)

Claims 1-16 stand rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious in view of U.S. Patent No. 5,258,480 and U.S. Patent No. 5,650,453, both to Eckberg et al. Claim 4 is canceled. In order for a reference to act as a §102 bar to patentability, the reference must teach each and every element of the claimed invention. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771 (Fed. Cir. 1983). Without the required teaching of "each and every element" as set forth in the claims, it is improper to maintain such rejections under §102(b). The Eckberg references do not teach each and every

element of the claimed invention, and thus fail as anticipatory references. Similarly, Applicants' invention is also not obvious in view of the Eckberg references.

Eckberg '480 describes the making of a silicone polymer. Specifically, Eckberg '480 refers to a "stripping process," wherein heat and vacuum are used to volatize low molecular weight silicones and unreacted vinyl epoxides. However, a review of Example 1 referred to in the Office Action illustrates that the process of Eckberg '480 is not sufficient to remove the low molecular weight cyclics to meet the extractable levels referred to in the present invention. For instance, the results shown a solids content of 97.5% , as in 2.5 % volatiles. The present invention requires and claims no more than 10 ppm volatile silicone compounds. Therefore, Applicants submit that the present invention is not anticipated by or obvious in view of Eckberg '480.

Eckberg '453 describes silicone coating compositions wherein certain photo-curable additives are miscible with photocurable silicone compositions. It appears to be a goal of Eckberg '453 to have a coating composition **absent** the presence of a solvent – "[t]he elimination of solvent is desirable for two significant reasons . . . elimination of evaporation reduces the energy requirements for preparation of the coated article." (col. 1, lines 21-25). Thus, it appears Eckberg '453 actually teaches away from use of a solvent that evaporates because it is regarded as less energy efficient. As noted in the Office Action, Eckberg '453 incorporates by reference the teachings of Eckberg '480 as to the preparation of the epoxy siloxane. Thus, it is asserted by the Examiner that the treatment of radiation curable silicone coating composition to remove silicone extractables and volatiles is present in Eckberg '453.

Applicants respectfully submit that for the same reasons set forth above that Eckberg '480 does not have a process sufficient to meet the claimed extractable levels of the present invention, the Eckberg '453 likewise does not have a process sufficient to result in the same product as the present invention. Further, Eckberg '453 teaches away from the use of a solvent system, which Applicants consider important toward achieving a product with the required level of low molecular weight silicone compounds. Therefore, Applicants submit that the present invention is not anticipated by or obvious in view of Eckberg '453.

In support of these assertions, comparative data between the Eckberg patents and the present invention are illustrated in the declaration of Dan Thompson. A straightforward comparison of the results shows that the Eckberg products contain higher levels of extractables

and outgassing components than the products of the present application. The resulting low levels of extractables and volatile silicone compounds claimed in the present application and supported by the declaration are not present, claimed or described in either Eckberg patent. Again, as with Leir, Applicants respectfully submit that the Eckberg patents do not inherently result in the same product as the present invention.

IV. Conclusion

In view of the foregoing, Applicants respectfully submit that claims 1-3 and 5-16 are patentable over the cited prior art, and are in condition for allowance. Applicants respectfully request that the Examiner reconsider and withdraw the rejections of the pending claims and enter an allowance of the same. Applicants further invite the Examiner to contact the undersigned attorney to discuss any matters pertaining to the present Application.

Respectfully submitted,

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